

WHAT IS CLAIMED IS:

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264/239+
1. A method for producing a polishing pad comprising
    - (a) providing a porous polymer structure;
    - (b) compressing at least a region of the porous polymer structure to provide a translucent region; and
    - (c) forming a polishing pad comprising the porous polymer structure, whereby a polishing pad is produced comprising the translucent region.
  2. The method of Claim 1 further comprising heating the porous polymer structure.
  3. The method of Claim 2, wherein the porous polymer structure is heated to a temperature within about 50°C of its melting temperature.
  4. The method of Claim 3, wherein the porous polymer structure is heated to a temperature about 10-50°C above its melting temperature.
  5. The method of Claim 1, wherein the porous polymer structure is compressed by about 10-50% of its thickness prior to compression.
  6. The method of Claim 5, wherein the porous polymer structure is compressed by about 20-40% of its thickness prior to compression.
  7. The method of Claim 1, wherein the porous polymer structure is opaque prior to the compression step.
  8. The method of Claim 1, wherein the porous polymer structure comprises a thermoplastic.
  9. The method of Claim 8, wherein the porous polymer structure comprises polyurethane.
  10. The method of Claim 1 further comprising mating the translucent region to a second polymer structure.
  11. The method of Claim 1, wherein the polishing pad further comprises a substantially opaque region.

12. The method of Claim 11, wherein the substantially opaque region is provided by a non-compressed region of the porous polymer structure.

13. The method of Claim 11, wherein the substantially opaque region is provided by a material that is different from the porous polymer structure.

14. The method of Claim 12, wherein the translucent region is thinner than the substantially opaque region.

15. The method of Claim 1, further comprising overlaying the region of the porous polymer structure to be compressed with a space-filling material prior to compressing.

16. The method of Claim 15, wherein the porous polymer structure and space-filling material overlaid thereupon are compressed to a thickness about equal to that of the porous polymer structure prior to compressing.

17. The method of Claim 16, wherein the space-filling material is the same as the porous polymer.

18. The method of Claim 1, wherein the porous polymer structure comprises an intrinsic surface texture.

19. The method of Claim 18, wherein the translucent region comprises an intrinsic surface texture.

20. The method of Claim 1, further comprising providing an extrinsic surface texture on at least a portion of the surface of the polishing pad.

21. The method of Claim 1, wherein the translucent region is translucent to light having a wavelength of about 190-3500 nm.

22. A polishing pad produced by the method of Claim 1.

23. The polishing pad of claim 22, wherein the translucent region is porous.

24. The polishing pad of claim 23, wherein the translucent region is sufficiently porous to absorb or transport polishing slurry.

25. A polishing pad comprising a region that is at least translucent, wherein the translucent region is porous.

26. The polishing pad of claim 25, wherein the translucent region is sufficiently porous to absorb or transport polishing slurry.

27. The polishing pad of claim 26, wherein the polishing pad further comprises a substantially opaque region.

28. The polishing pad of claim 27, wherein the substantially opaque region of the polishing pad is provided by a non-compressed region of the porous polymer structure.

29. The polishing pad of claim 27, wherein the substantially opaque region of the polishing pad is provided by a material that is different from the porous polymer structure.

30. A method of polishing a substrate comprising contacting a substrate with the polishing pad of claim 22 and moving the substrate and polishing pad relative to each other.

31. The method of Claim 30, wherein the substrate is a semiconductor device.

32. The method of Claim 31 further comprising passing light through the translucent region of the polishing pad to evaluate the polishing of the substrate.

33. The method of Claim 32, wherein the light is a laser light.

34. A method of polishing a substrate comprising contacting a substrate with the polishing pad of claim 25 and moving the substrate and polishing pad relative to each other.

35. The method of Claim 34, wherein the substrate is a semiconductor device.

36. The method of Claim 35, further comprising passing light through the translucent region of the polishing pad to evaluate the polishing of the substrate.

37. The method of Claim 36, wherein the light is a laser light.